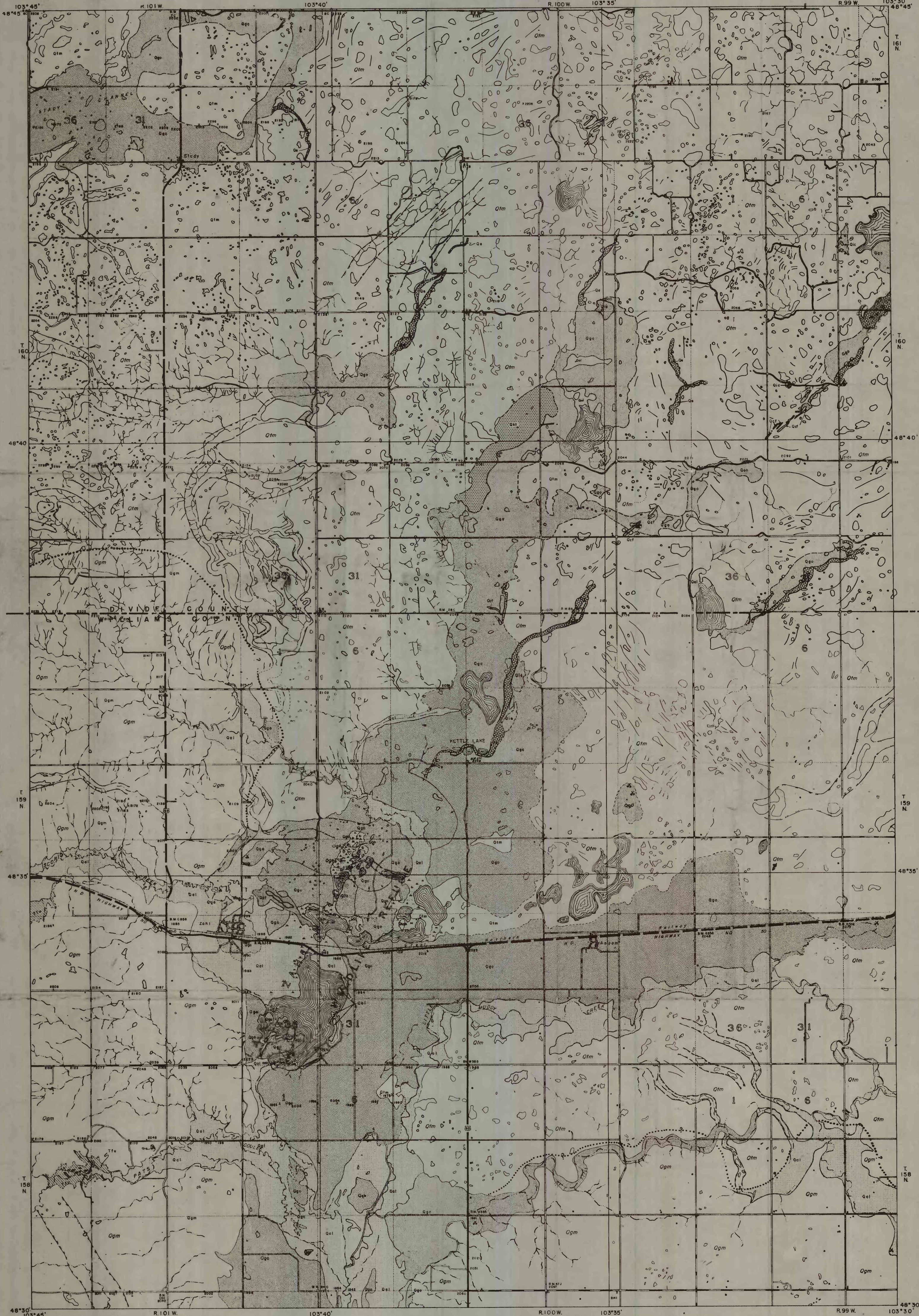


48-7

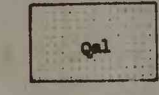
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PRELIMINARY MAP

MISSOURI RIVER BASIN
GEOLOGIC MAPPING AND MINERAL RESOURCE INVESTIGATIONS
MISSOURI SOURS, NORTH DAKOTA

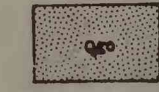


LEGEND



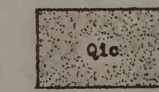
ALLUVIUM

Predominantly clays and silts in the floodplain of the Little Muddy, Pat's Coulee, Scoria Valley and along the margins of many of the larger kettle lakes. Along the Little Muddy in secs. 36, 35, 34, 35 and 36 sand and gravel is most abundant.

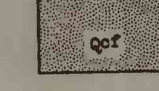


GLACIAL OUTWASH

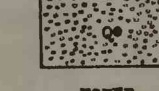
Stratified, crossbedded and interbedded sand and gravel ranging from fine sand to gravel 1 1/2" in diameter. Cobbles are present also. Composed of limestones, dolomite, granite, quartz, feldspar, chert and basic igneous and crystalline metamorphic rocks.



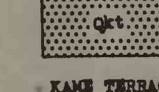
ICE CONTACT DEPOSIT



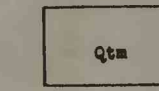
OUTWASH FILLING



ESKER

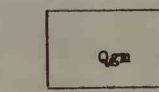


KAME TERRACE



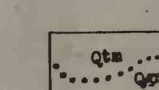
ALTAMONT (?) TERMINAL MORAINES

Late Wisconsin. Mostly stony, calcareous, blue-gray till; gray-brown where oxidized. Contains numerous scattered lenses of sand and gravel. Pebbles in the till and in the sand and gravel lenses include limestones, dolomite, granite, quartz, feldspar, chert and basic igneous and crystalline metamorphic rocks. Stones range from small pebbles to large boulders.



GROUND MORAINES

Pre-Altamont (?). Lithologically similar to the Altamont (?).



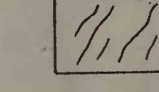
ALTAMONT (?) TERMINAL BOUNDARY

Indicates the southern terminal limits of the last ice (Altamont ?) in the area.

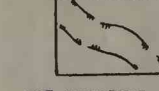


FORT UNION FORMATION (TONGUE RIVER MEMBER)

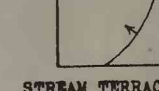
Gray, tanish-gray, and blue-gray shale and shaly-clay interbedded with light colored sands and clay sands. Contains lignite.



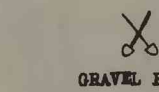
AXES OF MORAINAL RIDGES



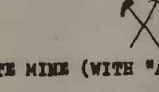
ICE MARGINAL CHANNEL



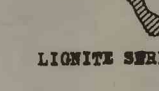
STREAM TERRACE SCARP



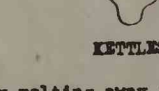
GRAVEL PIT



LIGNITE MINE (WITH "A" - ABANDONED)

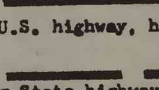


LIGNITE STRIP PIT

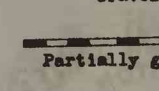


KETTLES

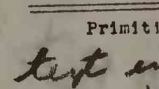
Depressions formed by melting away of enclosed or buried blocks of ice.



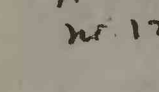
U.S. highway, hard surface



U.S. or State highway, gravel surface



Graveled



Partially gravelled



Dirt



Primitive

Left in (200) R290 W12

QUATERNARY

TERTIARY

GEOLOGY OF
ZAHLE 4 QUADRANGLE, NORTH DAKOTA

Geology by Garland B. Gott,
Robert M. Lindvall and
Wallace R. Hansen. 1946

North Dakota (Zahl no. 4 quad.) - Geol. 1:48,000. 1946.